

# Composite Nailboard for Unvented Attics

## November 21, 2014



**MATERIALS MATTER.**

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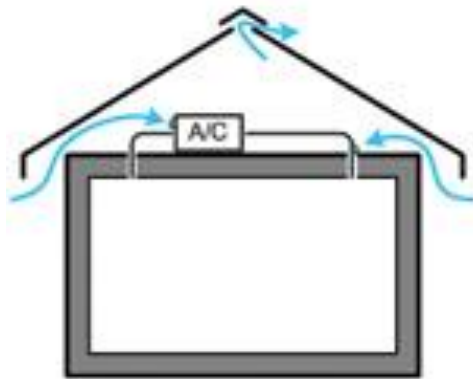
# Agenda

- Vented and Unvented Attics
- Applications
- Title 24 2016 Compliance
- Build Code Compliance
- JM Product Offerings

# Introduction

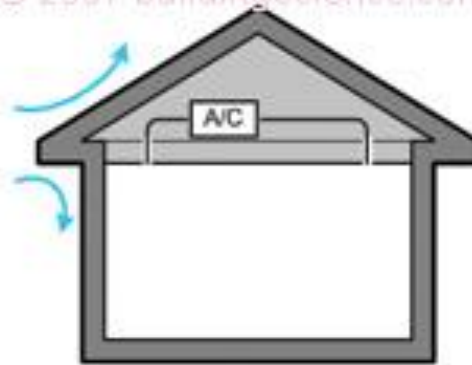
- How to comply with proposed new Title 24 requirements
  - Energy code requirements
  - Best practice building science
- Scope: Attic requirements in residential construction

# Types of Attics



(Conventional) Ventilated Attic

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Unvented Cathedralized Attic

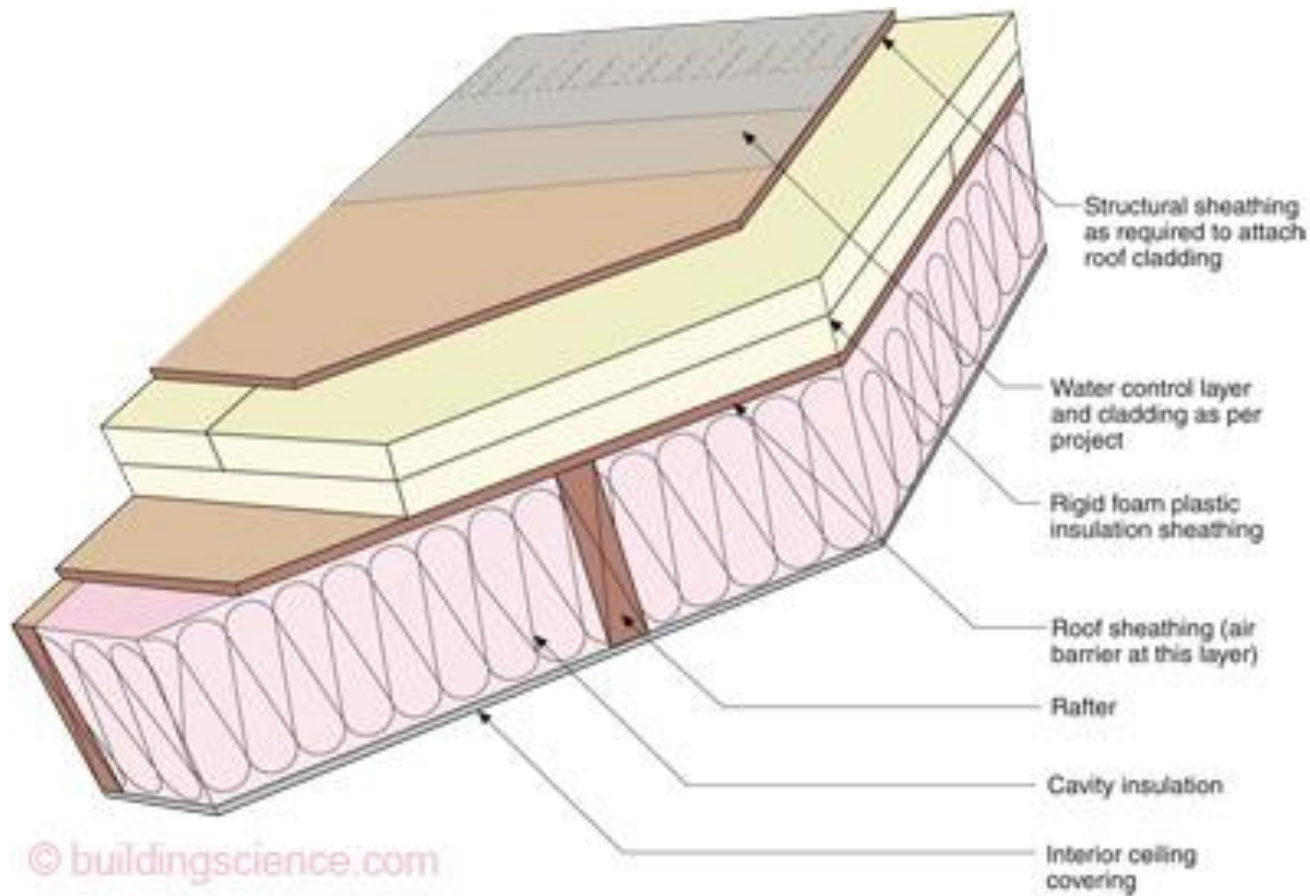


Unvented Cathedral Ceiling

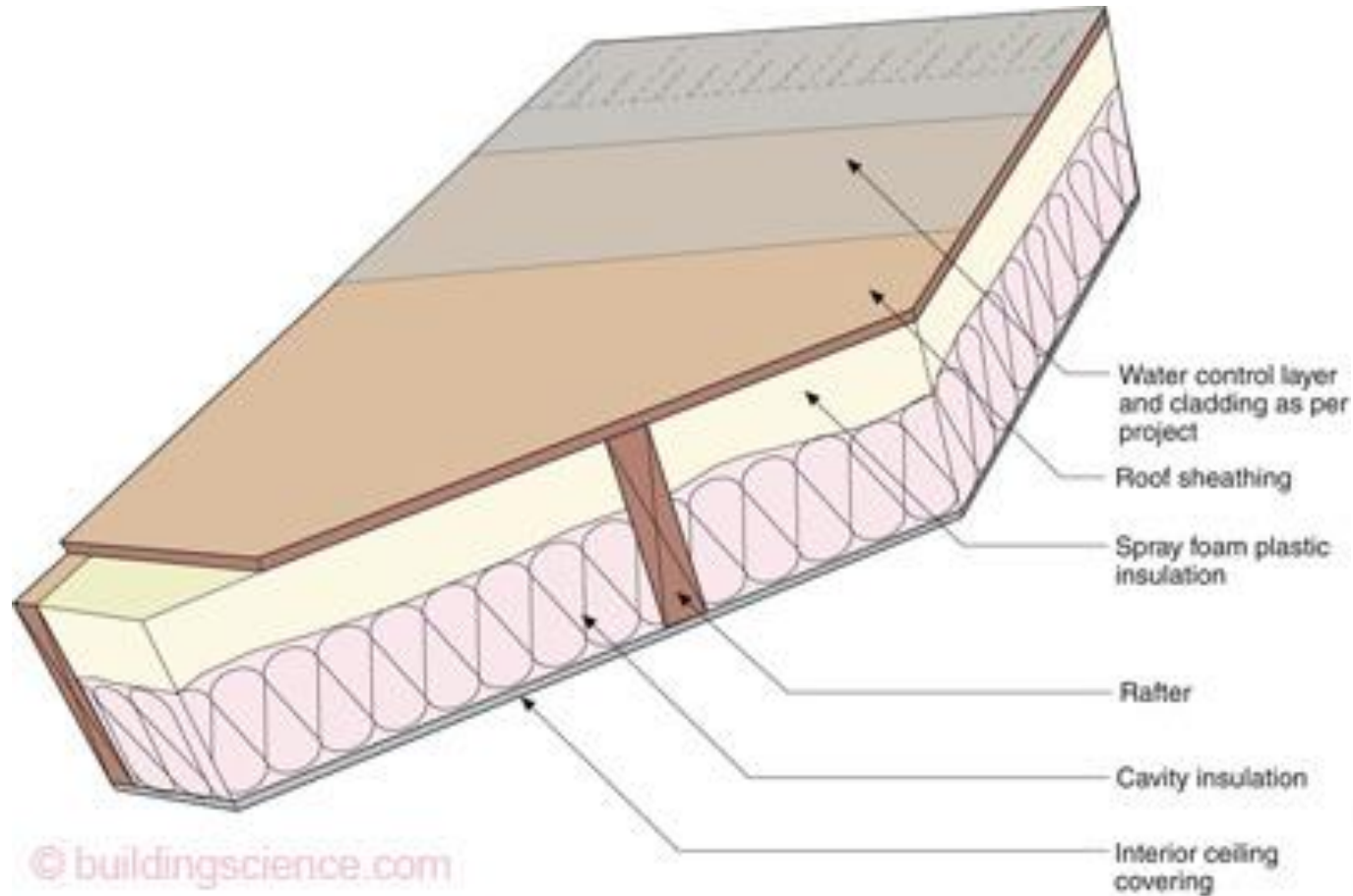


- Why an unvented attic?
  - To be used as a living space
  - Increase duct efficiency
  - Easier air sealing

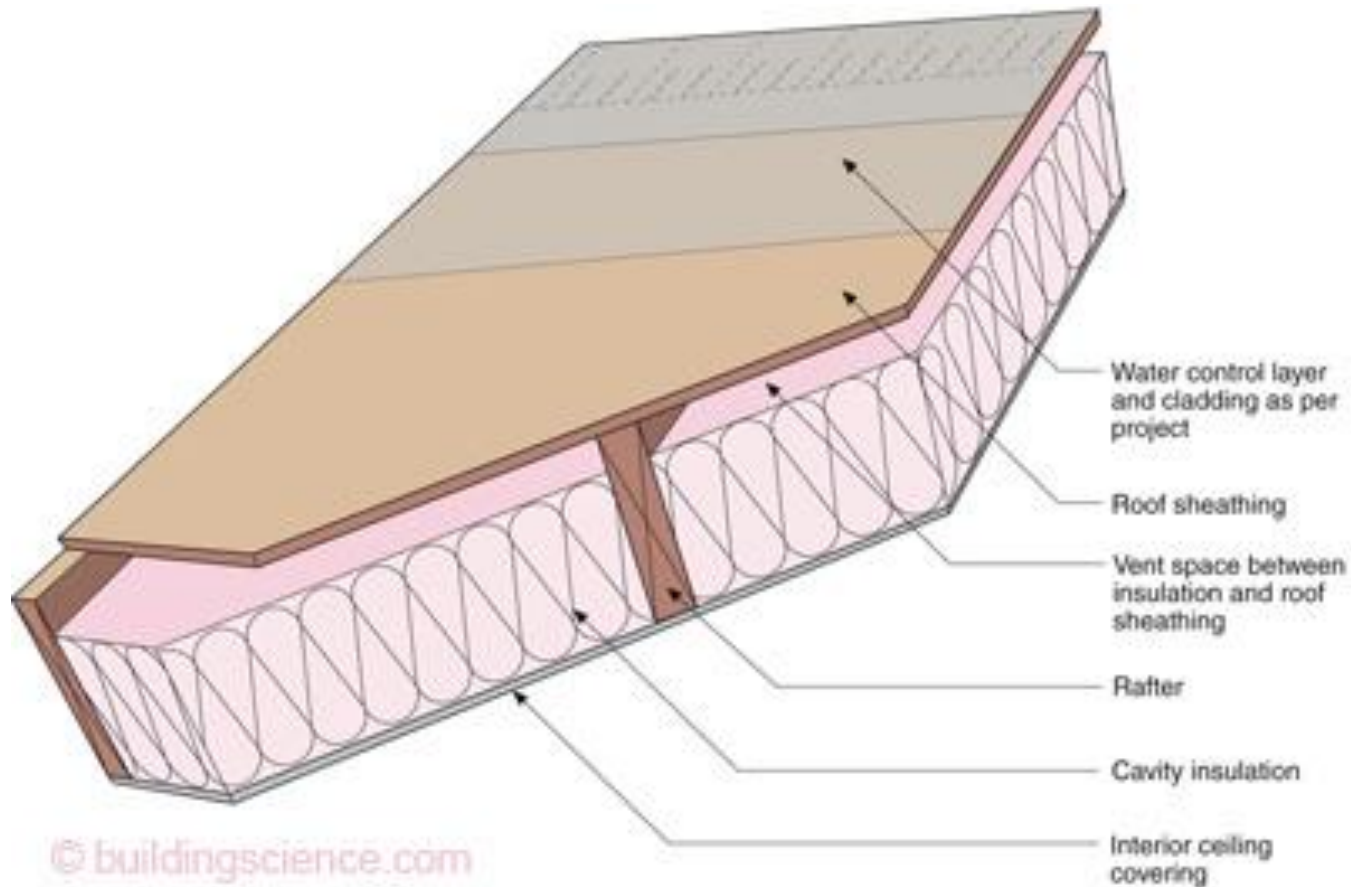
# Unvented Attics – hot roof



# Unvented Attics – Hot Roof with Spray Foam



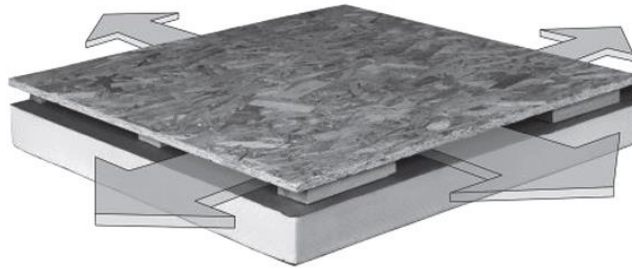
# Unvented Attics – Ventilated Roof



# Types of Insulation for Unvented Attics

- Foam Plastic Insulating Sheathing (FPIS)

- EPS
- XPS
- Polyiso



- Spray Polyurethane Foam (SPF)

- Closed Cell
- Open Cell



- Others

- Rock wool
- Fiber glass boards
- Fiberboard





# JM Nailboard Polyiso Composite Products



## JM product options:

- Wood: OSB (7/16" & 5/8"), CDX (5/8" & 19/32"), Rabbeted all sides: 1/8".
- Vent Spacing: 1.0, 1.5, & 2.0 inch.
- Foam thickness: 1.5" to 4.5" in 0.1" increments
- Foam compressive strength options: 20 or 25 psi.
- Available *without* halogenated fire retardants



# Nailboard for Unvented Attics



## NAILBOARD®

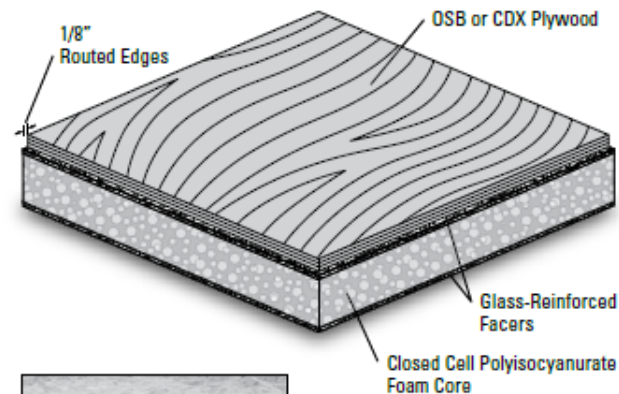
Polyisocyanurate Nailable Roof Insulation

**Meets the requirements of ASTM C 1289, Type V**  
(available with 20 or 25 psi ENRGY 3)

### Features and Components

**OSB and CDX Plywood:** Provides a strong nailable surface; always install wood side up. Available wood thickness OSB (7/16" & 5/8"); CDX (15/32" & 19/32"). All wood edges are routed 1/8" to allow for expansion and contraction of the wood.

**ENRGY 3:** Closed cell polyisocyanurate foam core bonded inline to glass reinforced facers. (See ENRGY 3 data sheet). Nailboard is manufactured off-line using an adhesive between the OSB and ENRGY 3.



| Component               |
|-------------------------|
| I<br>Insulation         |
| Multi-Ply<br>Single Ply |
| Type                    |
| HT<br>High Thermal      |
| CP<br>Composite         |



# Vented Nailboard for Unvented Attics



## Vented Nailboard® Polyisocyanurate Nailable Roof Insulation

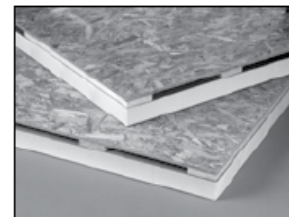
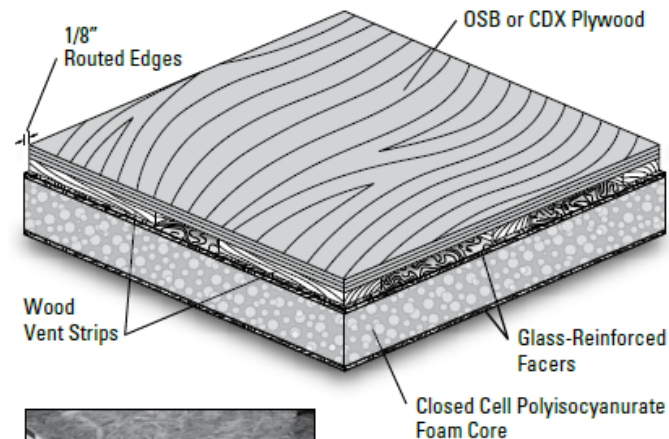
**Polyisocyanurate Insulation meets ASTM C 1289.**  
(available in 20 or 25 psi ENRGY 3)

### Features and Components

**OSB and CDX Plywood:** Provides a strong nailable surface; always install wood side up. Available wood thickness: OSB (7/16" & 5/8") CDX (15/32" & 19/32"). All wood edges are routed 1/8" on all four sides to allow for expansion and contraction of the wood.

**Vent Strips:** See pattern on next page. For wood thickness (1", 1.5", or 2").

**ENRGY 3:** Closed cell Polyisocyanurate foam core bonded inline to glass reinforced facers (See ENRGY 3 data sheet), Vented Nailboard is assembled offline using staples (strip to wood attachment) and adhesives (strip-to-foam attachment).



Component

**I**  
Insulation

Multi-Ply  
Single Ply

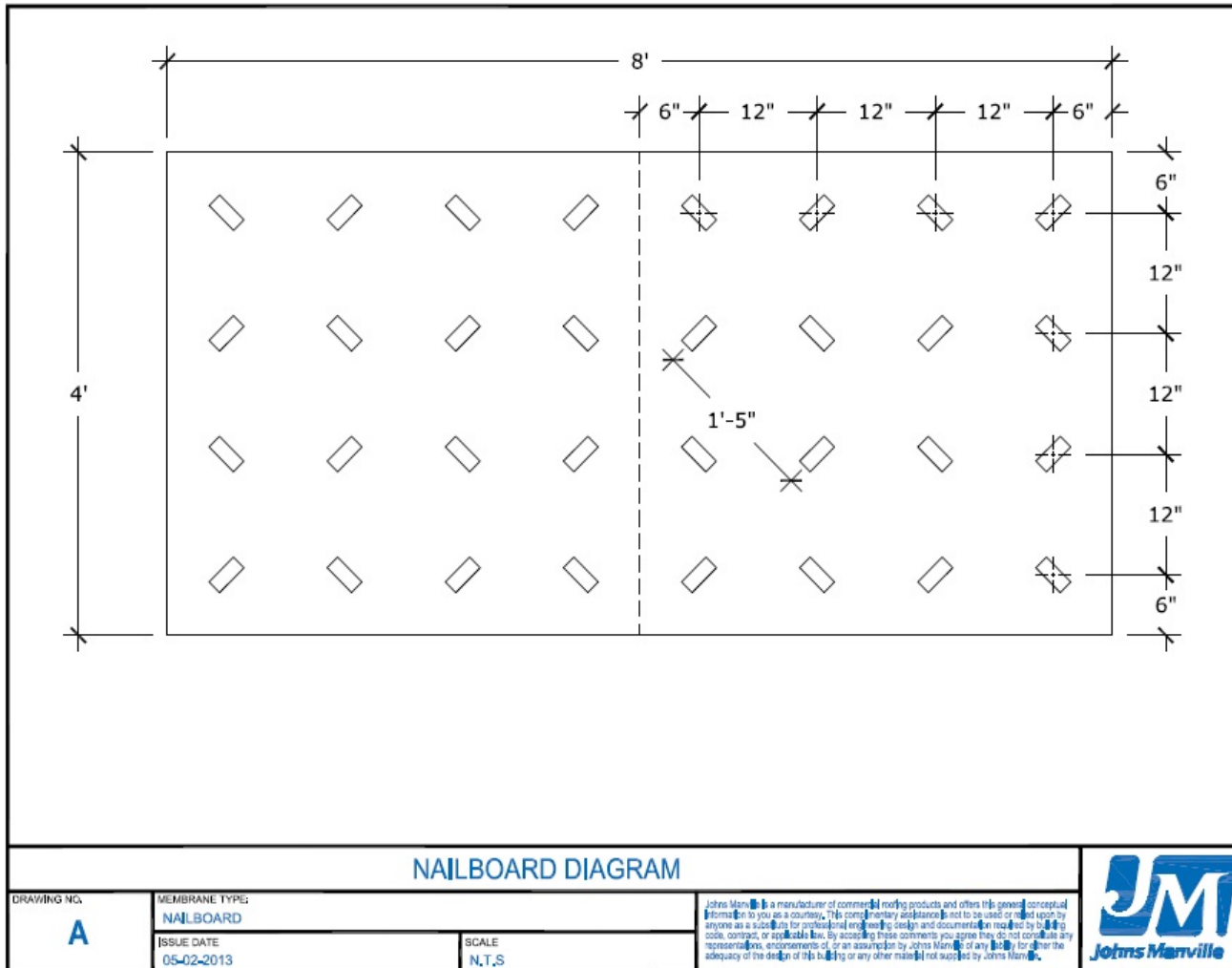
Type

**HT**  
High Thermal

**CP**  
Composite



# Vented Nailboard for Unvented Attics



The new design boasts NFA/LF of

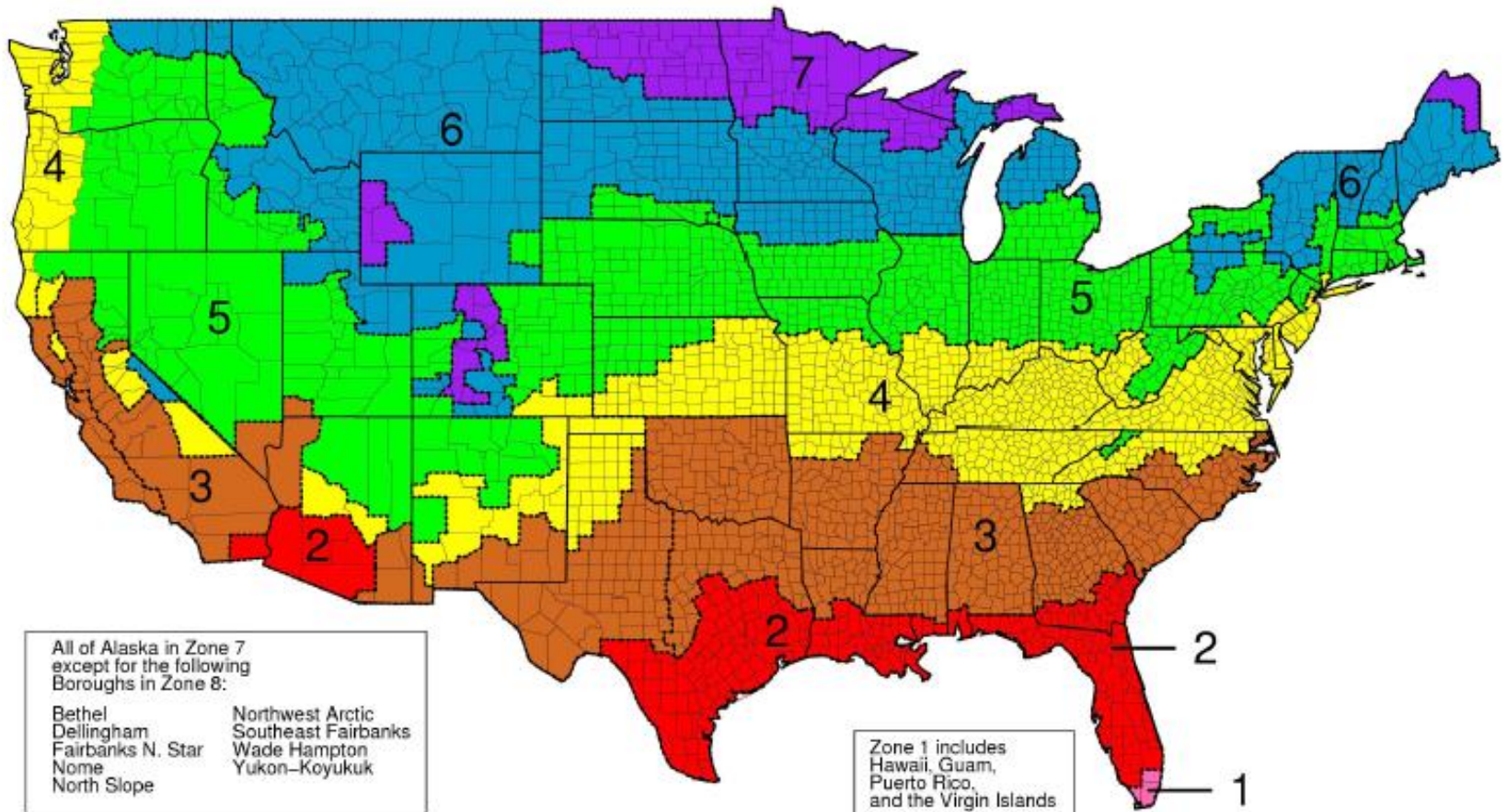
7.75 in<sup>2</sup> for airflow in both directions, offers compatibility with adjacent panels, and offers symmetry when cut into smaller panels (e.g. 4ft x 4ft).

NFA/LF values are primarily attributable to geometric configuration of the spacers with respect to airflow orientation.



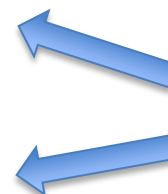


# U.S. Climate Zones



# How Much Insulation?

| CLIMATE ZONE                | MINIMUM RIGID BOARD ON AIR-IMPERMEABLE INSULATION <i>R</i> -VALUE |
|-----------------------------|---|
| 2B and 3B<br>tile roof only | 0 (none required)   |
| 1, 2A, 2B,<br>3A, 3B, 3C    | R-5   |
| 4C                          | R-10  |
| 4A, 4B                      | R-15  |
| 5                           | R-20  |
| 6                           | R-25  |
| 7                           | R-30  |
| 8                           | R-35  |



To avoid condensation  
(IRC 806.5)

# Fire Codes?

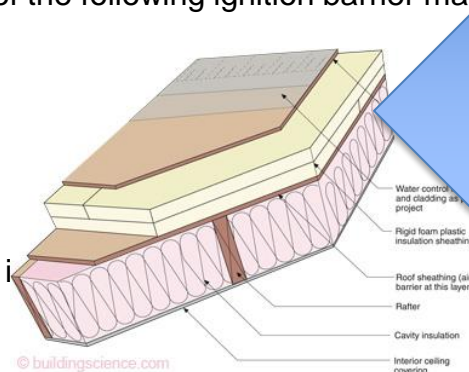
R316.3 Surface burning characteristics. Unless otherwise allowed in Section R316.5 or R316.6, a foam plastic or foam plastic cores used as a component in manufactured assemblies used in building construction shall have a flame spread index of not more than 75 and shall have a smoke developed index of not more than 450 when tested in the maximum thickness intended for use in accordance with ASTM E 84 or UL 723. ✓

R316.5.2 Roofing. The thermal barrier specified in Section R316.4 is not required when the foam plastic in a roof assembly or under a roof covering is installed in accordance with the code and the manufacturer's installation instructions and is separated from the interior of the building by tongue-and-groove wood planks or wood structural panel sheathing in accordance with Section R803, not less than 15 inch (11.9 mm) thick bonded with exterior glue and identified as Exposure 1, with edges supported by blocking or tongue-and-groove joints or an equivalent material. The smoke-developed index for roof applications shall not be limited. ✓

R316.5.3 Attics. The thermal barrier specified in Section R316.4 is not required where all of the following apply:

3. The foam plastic insulation is protected against ignition using one of the following ignition barrier materials:

- 3.1. 1/2-inch-thick (38 mm) mineral fiber insulation;
- 3.2. 1/4-inch-thick (6.4 mm) wood structural panels;
- 3.3. 3/8-inch (9.5 mm) particleboard;
- 3.4. 1/4-inch (6.4 mm) hardboard;
- 3.5. 3/8-inch (9.5 mm) gypsum board; or
- 3.6. Corrosion-resistant steel having a base metal thickness of 0.016 in.
- 3.7. 1/2-inch-thick (38 mm) cellulose insulation.



# Why Polyiso Foam?


- Higher R-value per inch than most *rigid board* insulation

| Continuous Insulation Type | R-value per Inch of Thickness |
|----------------------------|-------------------------------|
| Polyiso                    | 5.6 – 6.9                     |
| XPS                        | 5.0                           |
| EPS                        | 4.0                           |

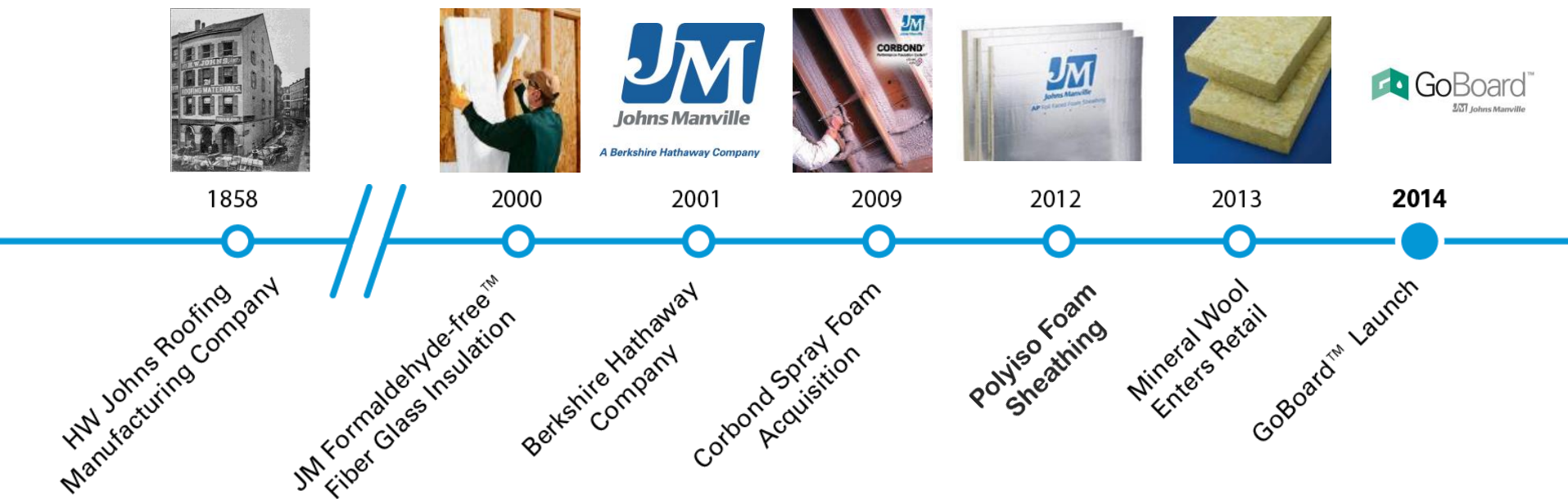
- Moisture-resistant, not a food source for mold
- Compatible with common adhesives and sealants
- Excellent dimensional stability
- Superior fire performance
- Zero ozone depletion potential
- Virtually no global warming potential



# PIMA Market Bulletin

|  |   | XPS   |
|--|--|---|
| R-value  | ★ R-value is 5.6 to 6.9 per inch based on actual thickness   | Standard XPS has an R-value of 5.0 per inch, regardless of thickness  |
| Fire Test Performance:<br>• ASTM E84<br>• NFPA 285<br>• NFPA 286/UL 1715 | ★ In all 3 fire tests, polyiso forms a protective char layer and does not melt.  | XPS softens at 165°F and melts between 200°F to 210°F which can potentially spread flammable material.  |
| Water Resistance   | ★ Classified as water resistant  | ★ Classified as water resistant   |
| Vapor Resistance   | ★ The low permeability of foil faced Polyiso coupled with its high thermal performance make it ideal for controlling condensation in stud walls                  | Higher permeability and lower thermal performance increases the likelihood of condensation in walls.  |
| Global Warming Potential – GWP   | ★ Made with hydrocarbon-based blowing agent that has zero Ozone Depletion Potential (ODP) and virtually no Global Warming Potential (GWP)                        | XPS is made with hydrofluorocarbon blowing agents, which have a Global Warming Potential (GWP) of 1300. This is 100 times greater than the blowing agent used in Polyiso. |
| Construction Compatibility   | ★ Not affected when exposed to petroleum-based solvents in adhesives, paints, stains, water repellent and preservative coatings, and in bituminous waterproofing | Can dissolve when exposed to petroleum-based solvents in adhesives, paints, stains, water repellent and preservative coatings, and in bituminous waterproofing            |

# 156 Years of Innovation



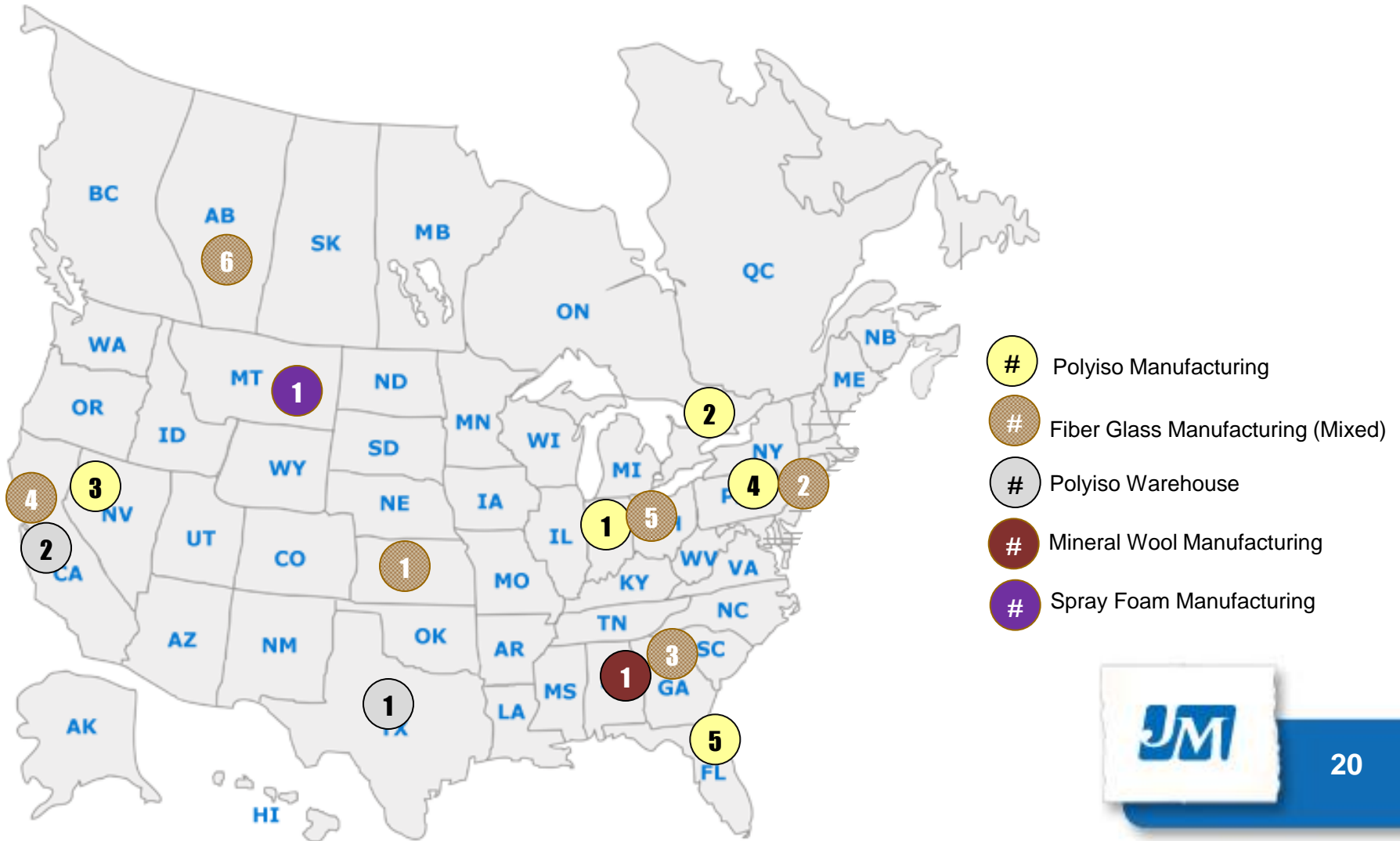
# JM Insulation Solutions-Product Portfolio

## Products

- Polyiso rigid boards and nailboard composites
- Batts & rolls
- Blowing wool
  - JM Corbond open & closed-cell
  - Spray-in fiber glass
- Mineral wool



## Supply Locations



Questions?  
Thank You